

ABSTRACT OF THE DISCLOSURE

An optical sensor for measuring physical properties of a strand includes a light source, and a pixel array having a plurality of pixels facing the light source. The array and light source define an area in which the strand is positioned so that an image of the strand is captured on the array by generating an output value at each of the pixels relative to an intensity of the light received at each of the pixels from the light source. A digital signal processor receives and processes the output value for each of the pixels to extract a particular physical property of the strand. The output value of each pixel can be an analog value, and the signal processor can digitize the analog value to generate a digitized value for each pixel.